

U.S. Application No.: 09/909,038  
AMENDMENT E

Attorney Docket: 3975.003

#### REMARKS

Review and reconsideration of the Office Action of May 12, 2005, is respectfully requested in view of the above amendment and the following remarks.

Applicant filed Amendment D on August 12, 2005. Applicant respectfully requests that the Examiner enter Amendment D filed on August 12, 2005.

In response to the telephone interview of August 30, 2005, and to the Advisory Action mailed on September 2, 2005, a RCE is being filed herewith so that Applicants' Amendment D may be timely entered and formally considered by the Examiner.

Applicants note that the Examiner indicated that the present set of claims is not novel in view that the claims are directed to selecting a catalyst using a numerical random generator and crossing by choosing and mixing components without detailed specific thereof. According to the Examiner, Wolf et al. discloses a method of producing a new catalyst by providing catalyst of the first generation mixture, restructuring the catalyst using evolutionary principles such as crossing and mutations and through random selection using random generators to produce a second generation of catalyst.

Applicants note that the Examiner is forgetting that the main point of the present invention is not the selection of a catalyst by a numerical random generator. The present invention goes beyond that point.

As discussed during the telephone interview of August 31, 2005, the feature of the present invention is the **removal of an individual component from 1<sup>st</sup> and 2<sup>nd</sup> mixed catalyst**, which component is present in either one of the two only, and **add that individual component to the catalyst**, which is lacking that individual component. (Steps iv and v).

Basically, the reference fails to teach:

- (1) selection of a first and second mixed catalyst (randomly);
- (2) selection of a first component from the first catalyst also randomly and inserting that first component into the second mixed catalyst which did not contain that first component before.

Illustration

**A) Present invention**

First mixed catalyst

Second mixed catalyst



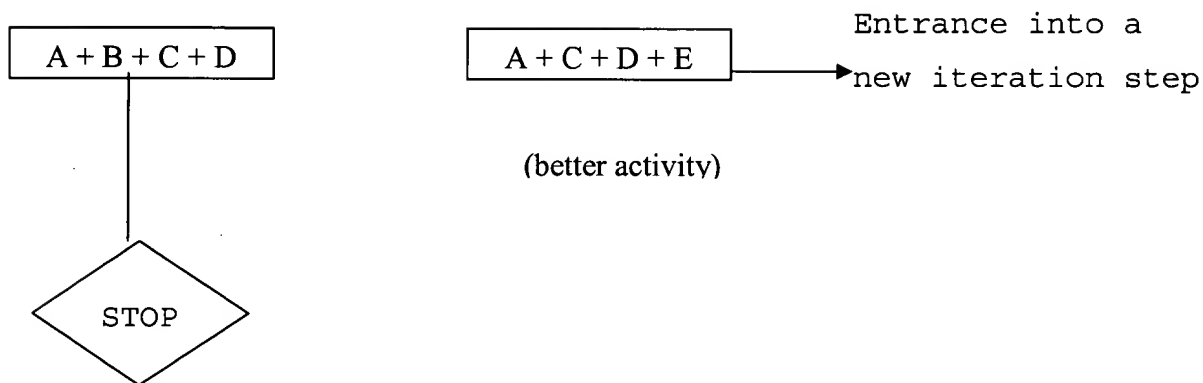
New mixed catalyst

A+C+D

A+B+C+D+E

are obtained in which component B is not lost but contained in a new mixed catalyst.

B) Wolf, et al. (WO 00/15341)



Component B would be lost for the further iteration.

Applicants reviewed the '341 reference and note that compared with Claim 10, the reference fails to teach the steps of:

(1) **selecting** from said first and second mixed catalysts a first **component that is present in only one** of said first and second mixed catalysts using a numerical random generator having a uniform distribution; (step iv)

(2) **crossing said first and second catalyst** by removing said first component from said first or second catalyst having said first component, and adding said first component to said first or second catalyst lacking said first component; (step v)

(3) the mutation process comprises the steps of mutating said **third mixed catalyst by adding said component if said third mixed catalyst lacks said component**, or removing said component if said third mixed catalyst has said first component. (Step viii).

These steps are important in order to avoid the loss of some of the components, which might be quite beneficial in other combinations. According to this invention, the range of available catalyst components in evolutionary selection, where choices are narrowed down, is kept broader so that in progressing from the first "randomized" step to the following generations created on the basis of an evolutionary selection strategy, some of the original components are not lost after one or a few successive generations.

This method, thus, leads to a greater targeting accuracy

U.S. Application No.: 09/909,038  
AMENDMENT E

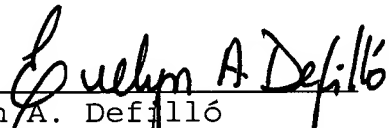
Attorney Docket: 3975.003

in the selection process. This requires a stronger representation of mixed materials having a good catalytic efficiency in the following generations, but, at the same time, retaining at first the mixed materials that are not excellent but whose individual components might be quite beneficial in other combinations, in order to thereby review their possibly positive effect in the following generations. Only when it is found in the evolutionary optimization process that these individual components do not contribute to an improvement in the catalytic materials are they ruled out during the further evolutionary process.

Furthermore, in view of the arguments presented in Amendments D and E, withdrawal of the rejections, favorable consideration and early issuance of the Notice of Allowance are respectfully requested.

Respectfully submitted,

Pendorf & Cutliff  
5111 Memorial Highway  
Tampa, FL 33634-7356  
(813) 886-6085

  
\_\_\_\_\_  
Evelyn A. DeFillio  
Registration No. 45,630

Date: **September 12, 2005**

U.S. Application No.: 09/909,038  
AMENDMENT E

Attorney Docket: 3975.003

**CERTIFICATE OF MAILING AND AUTHORIZATION TO CHARGE**

I hereby certify that the foregoing AMENDMENT E for U.S. Application No. 09/909,038 filed July 19, 2001, was deposited in first class U.S. mail, postage prepaid, addressed: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on **September 12, 2005**.

The Commissioner is hereby authorized to charge any additional fees, which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account No. 16-0877.

  
\_\_\_\_\_  
Evelyn A. DeFillio